

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 8

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No. 8



MILK AND MEAT

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

FEBRUARY BULLETIN.

COMMENTS.

The 1913 Legislature Convenes.

Again the State of California is preparing to consider new laws, amend old ones, and repeal those found to be useless. Already it has become evident that health legislation will occupy a prominent place in the calendar. Bills will be introduced regulating the food we eat, the houses we live in, the clothes we wear, the number of hours we work, the medicines we take, the doctors we choose and the nurses we employ, the towels we use, the cups we drink from, the length of the sheets we sleep under, where we shall not expectorate, what dogs may bite us and when—these are some of the things it is proposed to do to us. Then it is proposed to say what kind of air we shall breathe, what kind of water we shall drink, how we shall dispose of our sewage, what standard of cleanliness our dairymen shall maintain, what sanitary facilities shall be provided for our school children, what kinds of nuisances we may not maintain, and where we may not bury our dead animals. It is even proposed to say we shall not do certain things at all—things which it is believed will lower the standard of morals or may aid in the spread of disease, or in some other way interfere with social and economic progress.

Some say all this type of legislation is an encroachment on personal liberty and should be ignored by the legislators; others say the State is vitally interested in everything that pertains to the prevention of disease and the maintenance of the good health of all its citizens. As usual, when people honestly differ, the truth probably lies somewhere between. Undoubtedly we need more health control, but the Legislature must draw the dividing line between constructive and oppressive health measures.

The great majority of people live in rented houses, buy their food supplies from nearby stores or street wagons, place their children in the keeping of the public school for six hours a day, adapt themselves to the crowded conditions of stores, street cars, theaters, etc., and by innumerable other ways expose themselves to a maximum number of chances of contracting diseases that are communicable. It, therefore, becomes necessary for the State to devise methods of safeguarding this portion of its citizens from exposure to those dangers which the individual cannot foresee or avoid through any action of his own. In the past, the State has very largely failed in this duty toward its citizens.

Health the Chief Property of Average Citizen.

The principle of protection of property by the State is well defined. No citizen feels any sense of dependence or shame when he demands that his house be protected from fire at public expense, or that he be safeguarded from robbery by police paid from public funds. This principle is now being extended to cover his health and those things which directly contribute to it. Economic conditions are forcing us to realize that health (which is another term for physical fitness

for work) is the chief property of the average citizen, and that he has the right to demand public protection for it. Once this principle is recognized, the new possibilities for legislative control present themselves in great variety. Unfortunately, the citizen who advocates this view of health as a tangible property to be protected at public expense and by mandatory requirements for the sanitation and regulation of various enterprises does not always simultaneously realize that he has many responsibilities in return for this protection.

Public protection against fire is provided at small individual expense, but the citizen finds that in obtaining this protection he has been obliged to accept a limitation of his personal liberty. He can no longer string electric wires about his garret to suit himself; he must follow an ordinance and pay for an inspection to see that the work has been so performed as to eliminate the risk of fire. He finds that he can no longer heat his house as he chooses, but must comply with another ordinance. He cannot build a rubbish fire when and where he wishes; there are regulations on the subject. Inevitably the same principle holds in developing health protection at public expense.

The Legislature's task is to determine how far and in what directions the protection of health (defined as property) is desirable and how far restriction of individual liberty is justifiable in attaining the desired result.

**The Citizen Who
Wants to Conserve
His Health.**

Every facility should be afforded the citizen who wants to protect himself against disease. He should be encouraged to do those things which he may do for himself, and those things which he cannot do should be arranged for through the administrative departments of State and local government.

Obviously the sanitary control of water supplies, of milk and meat supplies, and of other food supplies is a state and county problem. It is not practical for each person to have his own water supply even at home, and when he travels he is entirely dependent on the care with which others safeguard water purity. Since water supplies are largely concerned with more than one county government, they should be controlled by the State. Likewise, milk and meat supplies are largely concerned with intercounty commerce and should be under state supervision. Foods and drugs are already under state supervision for the same reason. But there is this difference between water and milk: Everyone must use water, whereas milk, except for young children, is not an absolute necessity. Meat and other foods are classed with milk in this regard. In framing laws, therefore, it is justifiable to make a distinction between water and food supplies. The State should not permit any polluted public water supplies to be used, but it may, perhaps, limit its responsibility for milk and other foods to requiring complete and accurate labels on all products offered for sale, except those positively dangerous to health, which should be prohibited. The analysis of each measure proposed will show whether it should be enforced by state or local ordinances.

Since the greater part of the health conservation problem must be worked out through the observance of hygienic principles by the citizens themselves, it follows that popular education in hygiene and

sanitation should be seriously taken up by the State and every effort made to place the choice between healthful and unhealthful living conditions clearly before them. Experience with the food and drug laws has demonstrated that the people respond promptly and carry such legislation into effect. All such legislation, however, must include provision for a strong central department to keep it properly before the public. Every citizen wants to conserve his health if the way is explained to him and made simple.

Simplifying Administrative Machinery.

When two people sit down with pencil and paper to outline a plan of organization for the administration of state business, they generally agree upon the necessity for a governor; thereafter they disagree. One says, "the governor should not be given too much power," the other says "give the governor power to control his administration, then hold him rigidly accountable to the people for results." In all commercial enterprises there exists some permanency of policy and security of tenure in position for those who make a study of the business. Only in public business do we find sudden and violent reversals of policy and methods of administration. And only in public business do we find in responsible positions appointees who have never had any previous training in their several lines of work.

The difference of opinion referred to, generally arises from two diametrically opposed viewpoints. The first view holds that independent commissions composed of citizens of high standing interested in the public welfare, serving without pay, and not disturbed by responsibility for more than one phase of state government, will obtain the maximum results. The second view holds that such commissioners are unstable, that they are not coördinated with other allied activities of the state government, that they tend toward duplication of work and confusion of administrative details. The advocates of this second view believe that the grouping of all state administrative functions under five or six heads would get the best results.

There is evidence of a general alignment of the legislative members themselves upon this question. So far as the subject of public health is concerned, bills have been introduced in accordance with both policies. Many new lines of work are proposed for the State Board of Health, and some of its present duties are proposed for transfer to other state departments. The policy of the State Board of Health is to serve as a bureau of accurate information on all health measures, and to furnish such information as it can collect to both proponents and opponents of each measure. There are some measures, however, which necessarily involve the Board in taking a more active part. For example, a difference of opinion exists as to whether an independent commission on tuberculosis should be created or whether a bureau of tuberculosis under the supervision of the State Board of Health should be established. A number of bills of similar administrative significance have been prepared by various organizations. When grouped and analyzed with reference to administration, they represent the proposition outlined above. Shall we have one large state department of health responsible to the people for all matters relating to health conservation? Or, shall we have a number of independent commissions, each responsible for a special phase of health conservation?

This question in regard to health is also being raised in other branches of state administration. It is desirable that the matter be thoroughly considered and some permanent state policy be adopted. If concentration of the many boards and commissions at present carrying on the state's business is desirable, there should be an effort to group them into five or six departments. The question then arises: Do the people consider health conservation of enough importance to make it one of these major departments? If not, with what other activities should it be combined? These are a few of the basic questions which health officers particularly should consider carefully and be prepared to express an opinion upon when consulted by their representatives in this legislature.

NOTE.—The September, 1910, Bulletin of the State Board of Health was devoted to milk and meat. So many requests for this number were received that it was soon exhausted. These requests have been renewed since the present legislature has convened. The following condensed articles from the September Bulletin have therefore been included in this issue.

CALIFORNIA DAIRIES—THE GENERAL PROBLEM.

By WILLIAM F. SNOW.

California probably has in round numbers two million people who use milk in some form in their daily food. This forms a great market and the competition for it is keen. The milks which are presented in this market, whether fresh, canned, or powdered, are all put out in attractive containers, and all claim origin in the udder of the gentle domestic cow. The advertisements of these milks lend credence to the proverbial vision of softly lowing kine, yellow cream, dimpled dairymaids, and triple-plated tin pans; but it is not good business to waste time and money in producing milk under such conditions for an indifferent consumer, hence on investigation the vision generally fades into the sordid picture of the average California dairy of to-day. The gentle well-groomed cow glowing with health is found replaced by the business-cow which is considered to be simply a piece of apparatus useful in the production of so much milk at so much per gallon. The amount she is given to eat is gauged not by the amount she needs, but by the quantity of milk she will produce on a minimum diet. It is cheaper to buy new cows than to repair old ones when their health has worn out. The dimpled dairymaid is an English extravagance not attempted in California. The business of her grimy-handed successor is to milk his string of thirty cows twice a day and get back to his other "chores" as soon as possible. As to the yellow cream of the Arcadian vision, the producer has little to do with that. It is his business to see that his combined product meets the minimum requirement of law for butter fats—to go beyond this and stimulate fanciful visions of rich cream is wasteful.

From the business-cow to the indifferent consumer there are many and devious routes. They are constructed upon but one common principle, *i. e.*, large profits to the milk dealer and low price to the consumer. These conditions will continue so long as people fail to investigate their own milk supplies themselves, and refuse to provide their health officers with trained inspectors to do it for them.

The tenderfoot milk reformer sitting at his desk with laboratory reports and tables of infant mortality before his eyes, writes out a list of requirements for sanitary milk supplies. He wants healthy, well-fed cows, stabled and milked under sanitary conditions, the milk to be immediately cooled and conveyed to the consumer without exposure to dust or heat en route. Nothing could be more simple or more reasonable—on paper! No milk reformer of note has failed to pass through this stage. It is the inevitable enthusiasm of youth, and has been the means of bringing these same inexperienced but determined reformers face to face with the almost insurmountable commercial difficulties which confront the actual producer of the milk. In order to bring the facts of the laboratory to bear on the frightful infant mortality from "bad" milk these pioneer reformers have realized that education and patient persistence are the tools they must use. Health departments, police courts, state laws, and city ordinances are necessary details, but the essential foundation upon which milk improvement associations must build is instruction of the dairyman in the methods of producing clean milk and instruction of the consumer as to the characteristics and importance of pure, clean milk.

The dairyman points out the difficulties of the milk business in some such way as this: The milk commissions stir up the people with facts and figures to show the dangers of unclean milk, and city trustees are urged to pass ordinances, compliance with which means the expenditure of thousands of dollars on each dairy without prospect of increased revenue from the sale of milk. The public demands a low uniform price for milk throughout the year, but cheerfully pays a fluctuating price for butter, which is based upon the same varying costs of manufacture. Tuberculin-tested cattle are demanded when it is generally conceded that if he kills his tuberculous cattle he can not buy tested cattle to replace them. Trained dependable milkers are demanded, without regard to the scarcity of such men at any salary. Transportation of the milk in iced bottles direct from the producer to the consumer is demanded when it can be demonstrated that neither the railroad companies nor the middlemen will co-operate with the producer in accomplishing this. Lastly the dairyman complains that if he attempts to meet all these demands, his experience will be that of many others who have found that the public will not protect them from the cut-rate methods of competitors, who save expense by producing filthy milk.

The milk commissions have realized the justice of these charges, and are attempting to meet them.

The medical milk commissions are demonstrating that ambitious dairymen can produce safe, rich, clean milk if they determine to do so and have the steady patronage of an appreciative public: the civic milk improvement associations are demonstrating that dairies in general can maintain a much higher standard of cleanliness without increased cost: the educational committees of these associations, and other agencies, are demonstrating to the people that milk is a food, not merely a beverage, and that its value should be estimated not on its bulk and white color, but on the food materials it contains and the cleanliness with which it is handled: the State Dairy Bureau is improving the general standards of quality and sanitary environment of milk: and the State Board of Health is tracing out and eliminating unsanitary milk supplies brought

under its jurisdiction by the appearance of communicable diseases on dairy premises. The resultant of all these influences is a steadily improving milk supply throughout the State.

The special articles on milk which are being written for this Bulletin will give a survey of the lines along which this progress should proceed with accelerating speed. The administrative side of the question, however, is of importance. All students of the milk problem agree that milk inspection must include both laboratory and field supervision, if good results are to be obtained. Some cities receive milk from as many as twelve or more counties. These cities and the counties into which their field inspectors go have many differing regulations, and the dairy-men are often greatly confused by this. The need for standardizing inspection methods and regulations should be apparent. There should be a county milk inspector under the direction of the County Health Officer whose duty would be to enforce standard county ordinances for milk production. The State Bureau of Dairy Products should have the authority to control all intercounty traffic in milk just as the Federal Government controls interstate traffic in other foods.

One of the recent innovations in the milk business is the use of the single service package for milk. Many failures have marked the progress of this movement but milk cartons have now been devised which have withstood every practical objection from commerce and hygiene. There remains only the trial of such a package in competition with the individual-delivery bottle. If this is successful every effort should be made to encourage its widespread adoption. There is just as much reason (far more in fact) for buying a sealed, guaranteed package of milk direct from the farm of a well-known dealer of reputation for his fine dairies, as for buying a sealed package of baked beans, or shredded wheat biscuits on the same guarantee.

But from the point of view of the health officer there is a very special reason for advocating guaranteed, sealed cartons of milk, dated with the hour of milking and shipped unbroken from the dairy to the consumer or the city retail agency. The general insistence of the public on pure milk direct from the cow to the consumer in original sealed packages delivered on ice would tremendously reduce the illness and mortality among children, and would greatly increase the number of adult milk users who under present conditions deny themselves this valuable food. As a public health measure it would enable the health officer to immediately trace disease outbreaks due to milk and to warn all users of the dangerous supply without interfering with the general milk business of any section of the State. By cloaking the source of infections the middleman's mixing of milk from a large number of dairies undoubtedly favors the spread of disease.

In general, every measure which encourages direct transmission of milk from cow to customer should be encouraged. The old battle of original purity observed versus safety by filtration, as waged among water reformers, applies with far greater significance to milk supplies. Pasteurization may do all that is claimed for the process, and should be utilized wherever possible as a temporary measure in the advance toward better methods, but the fight for pure milk so handled that it will not need pasteurization or treatment by any one of several other methods that have recently been reported with good results, should never be abandoned.

THE CONTROL AND IMPROVEMENT OF THE MILK SUPPLY OF A LARGE CITY.

By ADELAIDE BROWN, M.D., San Francisco.

To secure clean milk very simple requirements must be met: healthy cows; clean dairying; rapid transportation of a chilled product; honest handling by the middleman, *i. e.*, the city agency which receives and distributes the product; the sanitary handling of milk and milk utensils by the housekeeper.

Our municipality (San Francisco) through its board of supervisors has passed laws to control the handling of milk in its borders; preservatives have been done away with; the fat content is regulated by law; and one of the duties of the chemist of the Board of Health is to appear in court against the milk distributor in whose possession milk below the standard in fat is found. As yet the bacterial content is not made a matter of legal prosecution, but it is studied in every milk sample, taken in sterile bottles and kept on ice until cultured. A count over 500,000 per cubic centimeter (certified milk allows 10,000 and averages 5,000) calls for a letter from the Board of Health ordering the producer to handle the milk more cleanly. Some municipalities have improved matters (Wheeling, W. Va.) by publishing the counts of all milk samples in the daily press. An immediate scurrying took place to come within the fold of "clean milk."

Our municipality has assumed another duty in inspecting not only the handling of milk in the city, but in passing regulation by which no dairy can be licensed to sell milk in San Francisco which does not produce it on premises and in a manner meeting certain definite requirements of sanitation. This regulation was passed under the last Board of Health through the influence of the Milk Improvement Association, who raised the money to pay for proper inspection of dairies producing milk outside of the limits of San Francisco County, and appointed a trained veterinarian to do this work. Admirable progress was made in this inspection in that the principle of educating the producer to appreciate sanitary dairies, clean water supply, and proper handling of milk went on steadily.

Many dairies were not licensed until five visits had been made by the inspector at short intervals, thus educating the dairyman to fully understand that the requirements specified at first must be carried out before a license could be issued. This line of work has continued under the present Board of Health and as a result a practically uniform count of 50,000 to 100,000 bacteria has ensued.

The handling of milk with other articles of freight and the proper handling of return cans comes under the head of transportation; and as yet, the value of the milk train which secures rapid and proper transportation of milk, and is supplied by the railroads themselves, is not appreciated by *our* large transportation companies. Therefore, our milk is mixed with chicken coops and the tops of cans are used as paths by men in passing back and forth through the car. Proper transportation is under consideration and through the education of the public it will, no doubt, in time be secured.

The health of the individual cow producing the commercial milk is as yet in no way regulated by more than gross tests. The tuberculin test

of dairy cattle has been brought up for consideration by the municipality of Berkeley, but has been turned down through the influence of the dairymen. Such facts as these are food for thought, at least. Of the cattle passing through California slaughterhouses under United States inspection, 10 per cent in 2,700 were retained for extra examination, being clinically tuberculous. All over the United States the average of tuberculous cattle in slaughterhouses under the same conditions is not over 2 per cent. Whether this condition of our herds can be met best by an attempt to eradicate tuberculosis by the constant testing of the herd or by proper municipal pasteurization of milk is an open question; the former being the ideal which certified dairies are pursuing, the latter probably the more practical course for the producer of milk. The

DEATHS OF INFANTS UNDER ONE YEAR OF AGE IN CALIFORNIA FROM CERTAIN CAUSES: 1906.

Cause	Number of deaths.	Proportion per 1000 deaths under one year.
Measles	38	11.71
Whooping Cough	59	18.16
Diphtheria	12	3.71
Croup	6	1.83
Influenza	14	4.30
Dysentery	34	10.44
Tuberculosis of the Lungs	38	11.71
Tuberculous Meningitis	62	19.05
Abdominal Tuberculosis	19	5.83
Venerent Diseases	26	7.99
Meningitis	132	40.56
Convulsions	73	22.42
Acute Bronchitis	69	21.20
Pneumonia & Broncho-pneumonia	343	105.37
Gastritis	28	8.60
Diarrhoea & Enteritis	727	223.34
Obstruction of Intestines	31	9.52
Acute Nephritis	16	4.91
Bright's Disease	14	4.30
Premature Birth	451	138.55
Congenital Debility	376	115.51
Violence	113	34.71
From all other causes	574	176.34
Total deaths— all causes	3255	1000.0

Compiled from Mortality Statistics U.S. Census Reports 1906.

It should be noted that the longest black line is for diarrhoea and enteritis. The general opinion of physicians is that 90 per cent of the babies dying of these diseases are bottle-fed, not breast-fed babies. These are among the diseases especially spread by "bad" milk. It sounds incredible to say that one baby out of five in California loses its life because of "bad" milk, but the evidence strongly suggests that this is so.

use of the word pasteurization as applied to what is known as flash pasteurization, exposing the milk for one minute or one minute and a half to 170 to 190 degrees, has a commercial but not a bacterial value and therefore gives false security. Dr. Rosenau of the Department of Hygiene, Harvard University, advises municipal pasteurization, exposing the milk for fifteen minutes to a temperature of 150 to 155 degrees for commercial milk. A practical method for securing this end has been worked out by Professor Farrington of the University of Wisconsin. To secure sanitary milk for a municipality some consideration of this matter will have to be made.

The duty of the householder to the milk delivered at her door is also a matter for education by physicians. Turning the milk into a container which exposes a large surface to dust and dirt while the cream is rising is bad sanitation. The same cream can be secured in a cleanly way by the use of the Chapin milk dipper, and this should be in the kitchen of every house. The habit of returning milk bottles unwashed, thus increasing their bacteriological content should be remedied. Using milk bottles for anything but milk should be controlled by education. The danger of milk as a carrier of disease needs only being explained to be understood by the laity. Milk bottles should never be taken to a room in which there is a contagious disease for although their mechanical cleaning is thorough at the dairy, they can not be exposed to steam sterilization long enough to be absolutely secure. A campaign of popular education in hygiene and sanitation improves the health of the community exactly so far as the teachers are enthusiastic and intelligent in regard to the possibilities of the situation. A milk supply will be good or poor in any city, according to the intelligent demands of the physicians and the laity of that city.

PASTEURIZED MILK.

By ALFRED BAKER SPALDING, M.D., San Francisco.

The tendency towards concentration of population in cities and the diffusion of knowledge in regard to sanitary science has created manifest troubles for all those engaged in the business of supplying food to the general public. It is hard enough when the average citizen demands merely that the price of his food shall not be high, but when he indignantly refuses to eat diseased meat and decayed vegetables, or permit even an honest adulteration or commercial medication of what comes to his table a point is reached when the hustling, rushing producer is driven almost to distraction. And of all the worried purveyors, the milkman is worried the most.

The milk supply of a city can be likened to a continuous, onrushing torrent, which, starting from many sources, some clean, some not so clean, some dirty, and some filthy, mixes together and acquires such a foulness that it passes with difficulty even the feeble protests of an inefficient force of city inspectors and pours itself down the mouths and throats of thousands of ignorant and intelligent, complaisant and besputtering, sick and well consumers.

From the fact that milk is opalescent, in place of being clear like water it is possible for a great deal of filth to pass unnoticed by the casual observer. One does not realize that the sediment in the bottom of a glass or a bottle of milk is merely an indicator of the larger amount of cow feces that the milk contains. It has been conclusively proven by experiments conducted by the Bureau of Animal Industry that tubercular cattle are constantly passing large numbers of tubercular germs in their fecal discharges. And bovine tuberculosis is so common (some large herds running as high as 60 per cent) that tubercular germs can be found in a large percentage of ordinary market milk. Hess recently found tubercle bacilli seventeen times in 107 samples of milk, retailed from forty quart cans in New York City. As the technique for finding

of dairy cattle has been brought up for consideration by the municipality of Berkeley, but has been turned down through the influence of the dairymen. Such facts as these are food for thought, at least. Of the cattle passing through California slaughterhouses under United States inspection, 10 per cent in 2,700 were retained for extra examination, being clinically tuberculous. All over the United States the average of tuberculous cattle in slaughterhouses under the same conditions is not over 2 per cent. Whether this condition of our herds can be met best by an attempt to eradicate tuberculosis by the constant testing of the herd or by proper municipal pasteurization of milk is an open question; the former being the ideal which certified dairies are pursuing, the latter probably the more practical course for the producer of milk. The

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By ALFRED BAKER SPALDING, M.D., San Francisco.

The tendency towards concentration of population in cities and the diffusion of knowledge in regard to sanitary science has created manifest troubles for all those engaged in the business of supplying food to the general public. It is hard enough when the average citizen demands merely that the price of his food shall not be high, but when he indignantly refuses to eat diseased meat and decayed vegetables, or permit even an honest adulteration or commercial medication of what comes to his table a point is reached when the hustling, rushing producer is driven almost to distraction. And of all the worried purveyors, the milkman is worried the most.

The milk supply of a city can be likened to a continuous, onrushing torrent, which, starting from many sources, some clean, some not so clean, some dirty, and some filthy, mixes together and acquires such a foulness that it passes with difficulty even the feeble protests of an inefficient force of city inspectors and pours itself down the mouths and throats of thousands of ignorant and intelligent, complaisant and besputtering, sick and well consumers.

From the fact that milk is opalescent, in place of being clear like water it is possible for a great deal of filth to pass unnoticed by the casual observer. One does not realize that the sediment in the bottom of a glass or a bottle of milk is merely an indicator of the larger amount of cow feces that the milk contains. It has been conclusively proven by experiments conducted by the Bureau of Animal Industry that tubercular cattle are constantly passing large numbers of tubercular germs in their fecal discharges. And bovine tuberculosis is so common (some large herds running as high as 60 per cent) that tubercular germs can be found in a large percentage of ordinary market milk. Hess recently found tubercle bacilli seventeen times in 107 samples of milk, retailed from forty quart cans in New York City. As the technique for finding

the tubercle germ free in milk is difficult, this percentage must be taken as merely a fraction of what probably exists.

The tubercular germ is mentioned simply to illustrate one well known disease producer carried in ordinary milk. The germs of typhoid fever, and of diphtheria, as well as others that can produce possibly just as dangerous diseases, are also occasionally discovered, while the so-called harmless germs, which cause souring, etc., are present in countless millions.

The milk distributor in the larger cities has, through the efforts of physicians, veterinarians, sanitarians, etc., been educated to know the conditions as they exist, and has, from the demands of his customers, endeavored to improve the conditions as well as he may and still keep down the price of his product to the level of that of his competitors. Of course he *should* sell only pure milk. He *should* buy from clean dairies, and he *should* prevent the enormous germ growth by keeping his milk cold. He would much rather sell clean milk than dirty, and he is so sorry that manure is mixed with his product that he will do all in reason to get it out. But it costs money to keep it out and as a matter of fact the public won't pay. There is always a premium paid for dirty milk. In New York a charitable society provided the poor of a certain neighborhood with certified milk for their babies at six cents a quart, paying the dairyman the regular increased price for his product. This was done in order to reduce the enormous death rate in infants from summer diarrhoea, caused by dirty grocery milk. All went well until the corner grocery reduced the price of milk to five cents and then the certified went begging.

One practical method that many milk distributors are carrying out is pasteurizing, or heating the milk. Heat, of course, will kill all kinds of germs,—good, bad and indifferent. But if milk is heated too much the taste is affected. After much experimenting it has been found that all the germs in the milk can be killed, and the quality uninjured, by heating it to 160 degrees for thirty minutes. The beneficent lactic acid germ is killed, as well as the injurious germ. Of course this does not alter the fact that manure is still in the milk; the manure is simply cooked. Moreover, unless this milk is later most carefully protected and kept chilled, it will soon become a more dangerous food than it was prior to the pasteurization, because new germs, constantly introduced through the usual practice of distribution, will grow rapidly in the pasteurized milk. If kept warm the pasteurized milk will rot and smell similarly to tainted meat, but will not sour because the lactic acid germs have been killed. Again in addition to the germs, there are spores, or eggs, in fresh milk which are not killed unless the process of heating is prolonged. These spores will rapidly reproduce millions of their kind as soon as the milk reaches the suitable temperature for their growth. As a matter of fact the commercial pasteurization of milk consists in heating the milk quickly to 160 degrees and then rapidly cooling. This instantaneous heating while economical, is not sufficient. While it kills ordinary germs and prevents souring, it can not kill the more virulent ones, and especially their spores. It actually aids the sale of dirty milk, for much filthy milk, on the verge of souring, can be pasteurized and passed on to the ignorant consumer, whereas if no pasteurization has taken place the consumer would recognize the trouble himself by the rapid souring.

Pasteurized milk should be the cheapest milk in the market. It should be pasteurized under the supervision of efficient sanitary inspectors and should be labeled plainly with the date and the degree of pasteurization. It should be kept cold after pasteurization, consumed quickly, and a second pasteurization should never be permitted. If there were on the market certified milk, which is as pure as milk can be produced, and inspected milk, which is from nontubercular cattle, and also is practically a pure, clean product, then pasteurized milk would come to be known as the cheapest product of the milk trade, cooked up so as to be safe. Practically that is exactly what pasteurized milk is, and its chief virtue lies in the fact that it meets the demands of the average consumer because it is cheap.

CERTIFIED MILK AND ITS RELATION TO PUBLIC HEALTH.

By LEWIS SAYRE MACE, M.D., San Francisco; Chairman Executive Committee California Association of Medical Milk Commissions.

In Newark, N. J., in 1892, began one of the most notable movements for the improvement of public health conditions that the century had seen. The physicians of this city, in common with those of other large communities, found themselves confronted by a problem in the milk supply which seemed well nigh insurmountable.

IMPURE MILK AND ITS DANGERS.

In the distribution of a large amount of milk daily to the centers of population it was but natural that cheapness of the product should determine the success or failure of the producer, provided, of course, that the cheap product could be sold as readily and at as high a price as the clean and consequently more costly article; this was the case with milk. It is an opaque liquid, and almost an unlimited amount of contamination is concealed from view. It is consumed soon after delivery, and so, provided it does not turn sour within a few hours, no complaint will be made. The milk from an infected or diseased cow will, generally speaking, taste as well, and what is more important, sell as well as that from a healthy herd. The result most naturally was that, with few exceptions, the dairies at that time supplying large cities were in an unspeakable condition of filth and wretchedness. The impure product of dirty and infected cows, the sole food of hundreds of thousands of children, caused a death rate so large that all sanitarians and all thinking people were concerned.

THE DEVELOPMENT OF AN IDEA.

An idea occurred to Dr. Henry L. Coit, of Newark, N. J., which was destined to play a tremendous part in the awakening of the public conscience and in the ultimate solution of the pure milk problem. A medical milk commission was formed with Dr. Coit at the head, which proceeded to find a dairyman with a well equipped plant and intelligence and ambition enough to desire to be at the head of his business. He agreed to maintain a healthy tuberculin tested herd in sanitary surroundings and to have them milked and handled with all possible precautions against contamination. Experts employed by the commission

and the commissioners themselves were to inspect the dairy at frequent intervals and offer suggestions as to improvement of the technique. The commission, on the other hand, agreed to allow him to seal his milk bottles with their official seal and to market his product at an advanced price under the name of "certified milk."

A CAMPAIGN OF EDUCATION.

The milk commission then began a campaign of education which in the past eighteen years has been the means of placing a supply of pure milk in hundreds of cities, and, what is of far greater importance, of arousing a public demand for a purer product and the enforcement of laws for the betterment of the general milk supply.



The essential apparatus for transferring milk from the cow to the consumer, as used by a certified dairy in Central California. Note the gauze-protected milking bucket, the tall covered carrying bucket used in transferring the milk from the cow to the bottling room. The bottles are immediately filled, sealed, and placed in an ice water bath till packed in the boxes for shipment.

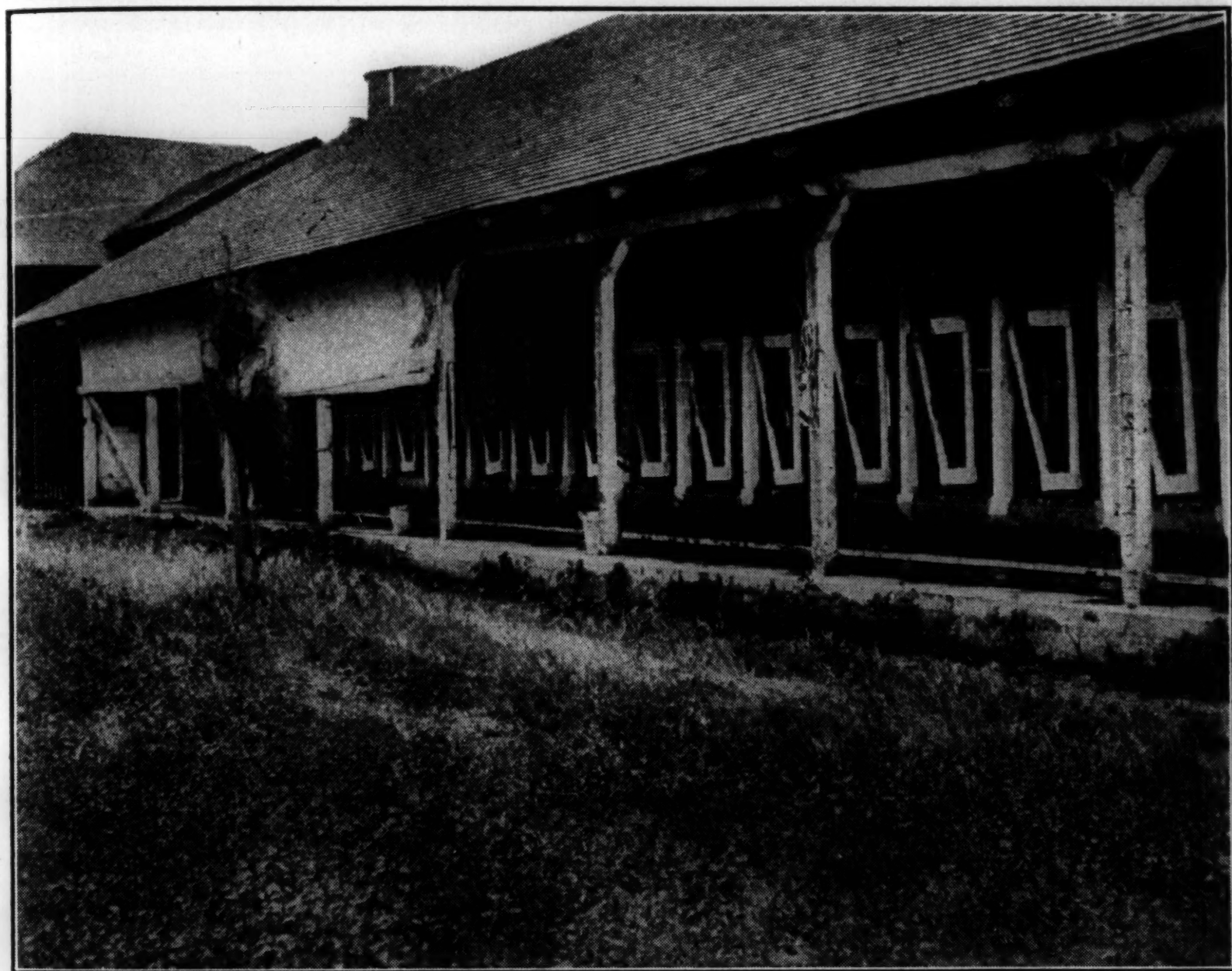
CERTIFIED MILK DETAILS.

The layman has little idea of the countless details which have to be observed before the capped and sealed bottles can be placed upon the market. The cows of the certified herd are especially selected for their health and freedom from tubercular infection. They are regularly examined by the official veterinarian and twice yearly tested with tuberculin. Every cow bears a numbered ear tag and her record and picture is on file with the secretary of the milk commission. Every detail of their surroundings and daily life is carefully supervised. They are

groomed and washed like racehorses, and the visitor to the milking barn searches in vain for olfactory evidence that a couple of hundred cows are milked there twice daily.

The cleanly milkers in their white duck suits carrying the milk to be bottled and the bottling rooms that look like laboratories or surgically clean operating rooms makes an impression upon one which is not easily forgotten.

Certified milk is more than a pure milk supply to be used in emergency for sick children. It is an example of the most perfect product that science and skill can produce, and a notice to all the world that this most important food product can be produced in a clean and



A "fresh air" milking shed in a Southern California certified dairy. Note the grass to prevent dust, the curtains to prevent wind and rain. The construction is very simple and practicable.

wholesome manner, and that ignorance and commercial greed alone are responsible for the existence of impure milk in our markets to-day.

UNCLEAN MILK A MENACE.

Already the production and demand for certified milk is large enough to prove that when the consumer realizes that he is better off and safer with clean than with unclean milk, he is willing to pay a fair price to get it. And this is the real function of the medical milk commission—to teach the public the lesson which they are so slow to learn, that unclean milk from infected sources is a menace to public health. It is a difficult lesson because the science of milk production is so little understood, and milk, as long as it is reasonably rich in fat, does not by appearance and taste condemn itself as other food products do.

A CRITICISM.

Medical milk commissions have been criticised, I know, for confining their activities to the certification of certain dairies instead of using their time and expert knowledge for the improvement of the general milk supply. A moment's thought will show that in doing this they are rendering the greatest possible service to the public, for it is not in a day or a year or a generation that the people as a whole can be educated to demand a pure milk supply, and if it were not for the example of the certified farms constantly before us, we would not only be without a pure supply in time of pressing need, but the public mind, misled by the prejudicial statements of the commercial dealer, would soon lose sight of the real issues involved, and we should soon be back again to where we were a decade ago.

PUBLIC REALIZATION.

It is, of course, shortsightedness which makes the commercial dealer depreciate the value of certified milk. A large portion of the public already realizes that milk is the most important and most generally used article of food, and that its purity is of untold importance.

They already know that the dairy cattle of this State are, to an alarming extent, infected with tuberculosis, and they will not long put up with the character of the product now offered them; neither will they long be put off with the commercial makeshift of pasteurization, even if it should be advocated by the department of agriculture itself. When once they decide to use only milk free from tuberculosis they will not be appeased by the statement that the milk has been warmed and the germs, perhaps, killed.

EXTINCTION OF TUBERCULAR CATTLE.

When that time comes the owner of a certified herd will be far ahead of all his competitors, for we are certain, ultimately, to demand the extinction of tuberculosis among our dairy cattle. It cannot be done in a short time, for things have been allowed to drift too long; but by the State control of importation of cattle, and of dairy conditions the end will be at last attained. And when it is, the credit will be largely due to the efficient and faithful work of the medical milk commissions, which have labored so unceasingly since the first commission was appointed in Essex County, New Jersey, eighteen years ago.

WORK OF THE STATE DAIRY BUREAU.

By F. W. ANDREASEN, Secretary.

The aim and some of the duties of this Bureau are to work for improvements in the sanitary conditions of dairies and factories of dairy products, and to enforce the laws prohibiting adulteration of milk, cheese and butter, and the use of chemical preservatives in dairy products. In this article I will only touch on the duties referred to above, and our efforts to perform these duties.

The greater part of the appropriation has been expended to better the sanitary conditions of dairies producing butter, or furnishing milk and cream to cheese factories and creameries, and also to improve the sanitary conditions of said factories and creameries. The work is pro-

gressing slowly because we have not enough inspectors, four being all that are regularly employed. If, at times during the year, we have more, the force must be reduced below that number at other times, to make ends meet. There are now about ten thousand dairies in this State supplying milk or cream to factories, or making butter and cheese themselves, and it would take the four inspectors two years to visit all of them once. Of course some of these dairies must be visited many times, and the inspector must spend days with the district attorney and in court before any improvement is made.

There are a great many fine stables and dairy houses being built at the present time, and we have inquiries nearly every day as to the best way of building and how to meet the requirements of the law. But there are yet many that start in dairying without the necessary equipments and buildings, making no provisions for heating water in which to wash and sterilize their utensils, nor for a room in which to handle, cool and store their product. To have these errors corrected has been our greatest fight.

The boards of health of municipalities that have their own dairy inspectors, have greatly assisted us in our work. They can get better results, first, because they have time to visit dairies more frequently, and secondly, because they can recommend that the permit to sell milk in the municipality be taken away unless the milk producers comply with the rules adopted by the Board of Health. We can demand improvements but must rely on the district attorneys, judges, and juries to enforce our demands.

With the creameries we have had little or no trouble. The small and poorly constructed plants are fast dropping out of business or being turned into skimming stations and fine new plants, equal to the best creameries in any country, are taking their places. In some old plants so many changes were ordered by the inspectors that the owners tore them down and built new. At times some of the employees get negligent, but, if the attention of the management is called to it by the inspector, the trouble is nearly always corrected at once. The creamery managers are in perfect accord with the State Dairy Bureau as far as the sanitary conditions are concerned and give us their moral support. Some years ago, when inspection could not be made otherwise, they assisted us financially as well. The great trouble at this time is that they are demanding inspection on every side and we have not enough men to accomodate them all. There are about two hundred creameries in the State, and some of them have as many as six hundred patrons. We must at present work principally in the most concentrated dairy districts to accomplish the most good at the least expense.

The bureau has done considerable work throughout the State collecting samples of milk to determine whether the law prohibiting adulteration and the use of chemical preservatives is being violated. At the time (1907) and for some time after the law was passed the use of boron was very common. During the last year, though every sample of milk collected has been analyzed for preservatives, only three have been found containing formaldehyde and seven containing boron. Much of the milk sold by milk dealers is below the standard established by law in this State, and about fifty per cent of the samples taken from restaurants

and hotels in some of the cities are below standard. Some are low in both fat and solids not fat.

In the majority of cases brought by this bureau the defendants have plead guilty and paid the fine, but some complaints have been filed where it appears that the cases will never come up for trial. Others have been dismissed, some have been heard and judgment suspended, and others heard and taken under advisement, and though months have passed, we have not been able to learn what the decision was.

Restaurants and hotels can usually buy good milk from dealers or dairies for sixty cents a can containing twelve quarts. A glass, such as is usually served for five cents, is about one third of a quart. There should be enough profit in this business to assure their customers receiving good, fresh, and pure milk. We believe that the law as it now stands is just and should be enforced.

CALIFORNIA MEATS.

The Meat Question in California.

By WILLIAM F. SNOW.

When the author of the "Jungle" wrote his story of the Chicago packinghouses in 1906 he had in mind the employees' problems of sociology and the hygiene of occupation rather than the marketing of healthy meat. It is probable that he viewed with much impatience the manner in which the public passed over the moral of the tale and proceeded to safeguard its own stomach.

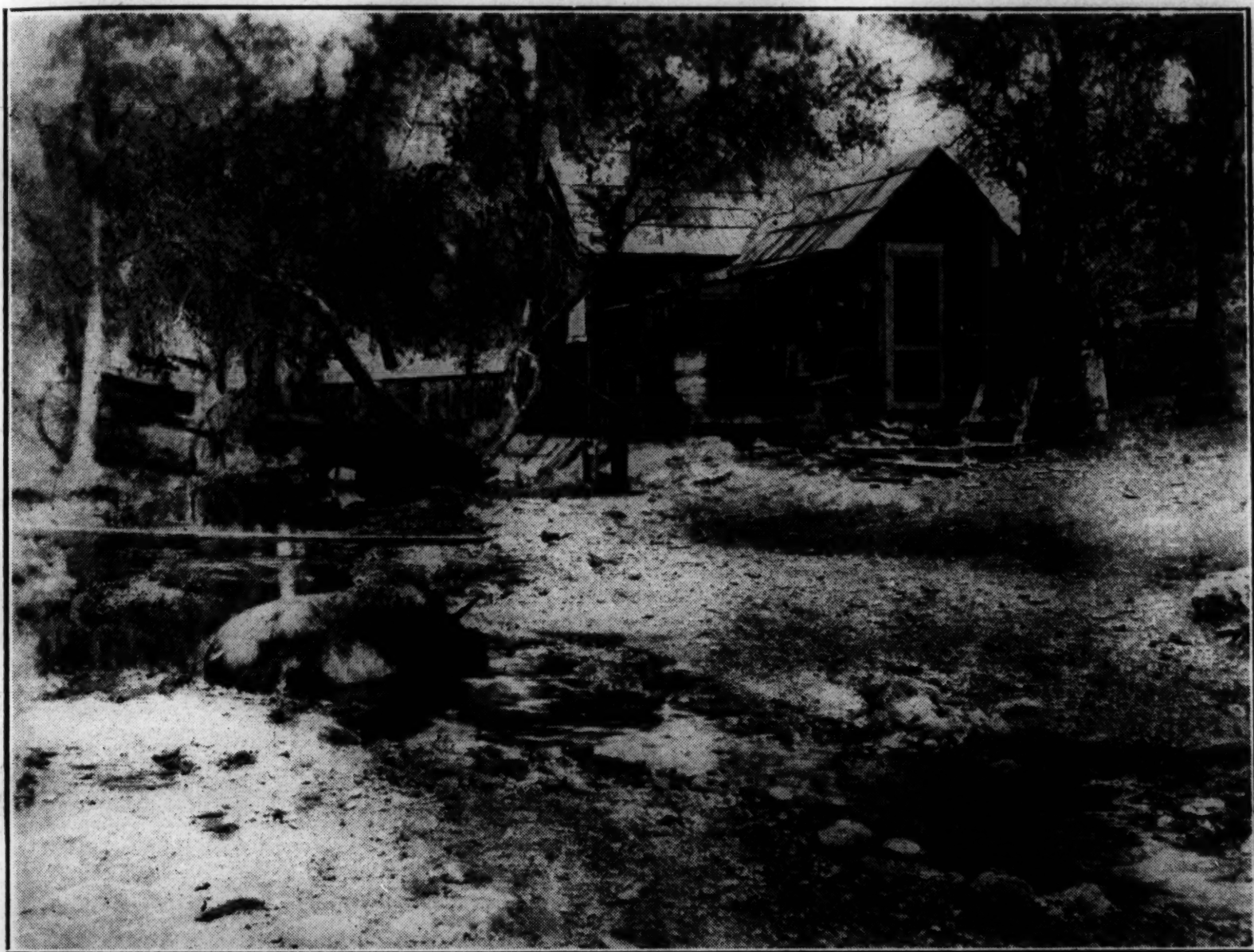
The story may have served as an accidental stimulus to crystallize public action, just as any foreign substance dropped into certain liquids on the point of crystallization will cause their instantaneous solidification. Be this as it may, since the appearance of Sinclair's book there has been a steady effort on the part of the public to improve the meat supply.

Long before this activity on the part of the public the United States Department of Agriculture began the scientific investigations and administrative experiments necessary for developing a satisfactory and economical method of public health control of the meat supply. The demands of foreign commerce induced congress to enact the laws governing the inspection of meat for export trade, and ultimately to extend this supervision to interstate shipments of meat. This has had two results: (1) It has insured only clean, healthy American meats in foreign markets, and has made possible these same meats in a few of the markets in the larger cities of our own country. It has proved that such inspection may be made effective without increasing the consumers' price for meats. (2) It has also placed a premium on selling animals of doubtful health to small slaughterhouses for sale to local markets not under Government supervision.

California needs but to standardize the inspection of her intrastate meats in accordance with the Federal requirements, to have a clean, healthy meat supply throughout the State. This, of course, involves the solution of many local difficulties and the development of inter-county coöperation, if it is to be accomplished without great expense

to the taxpayers, or increased cost of meat. Yreka, Oakland, San Francisco, and Los Angeles have been making steady progress in the fight for adequate meat legislation. Many other cities and towns are making less strenuous efforts in the same direction. Redding is planning to establish a union slaughterhouse reservation, and many cities have been very energetic in demanding that their slaughterhouses clean up.

The education of the public in the essentials of a wholesome meat supply should be pushed with more vigor than has been evidenced in the past. Both those who believe in a meat diet and those who oppose all slaughtered meats should find no difficulty in uniting in this work.

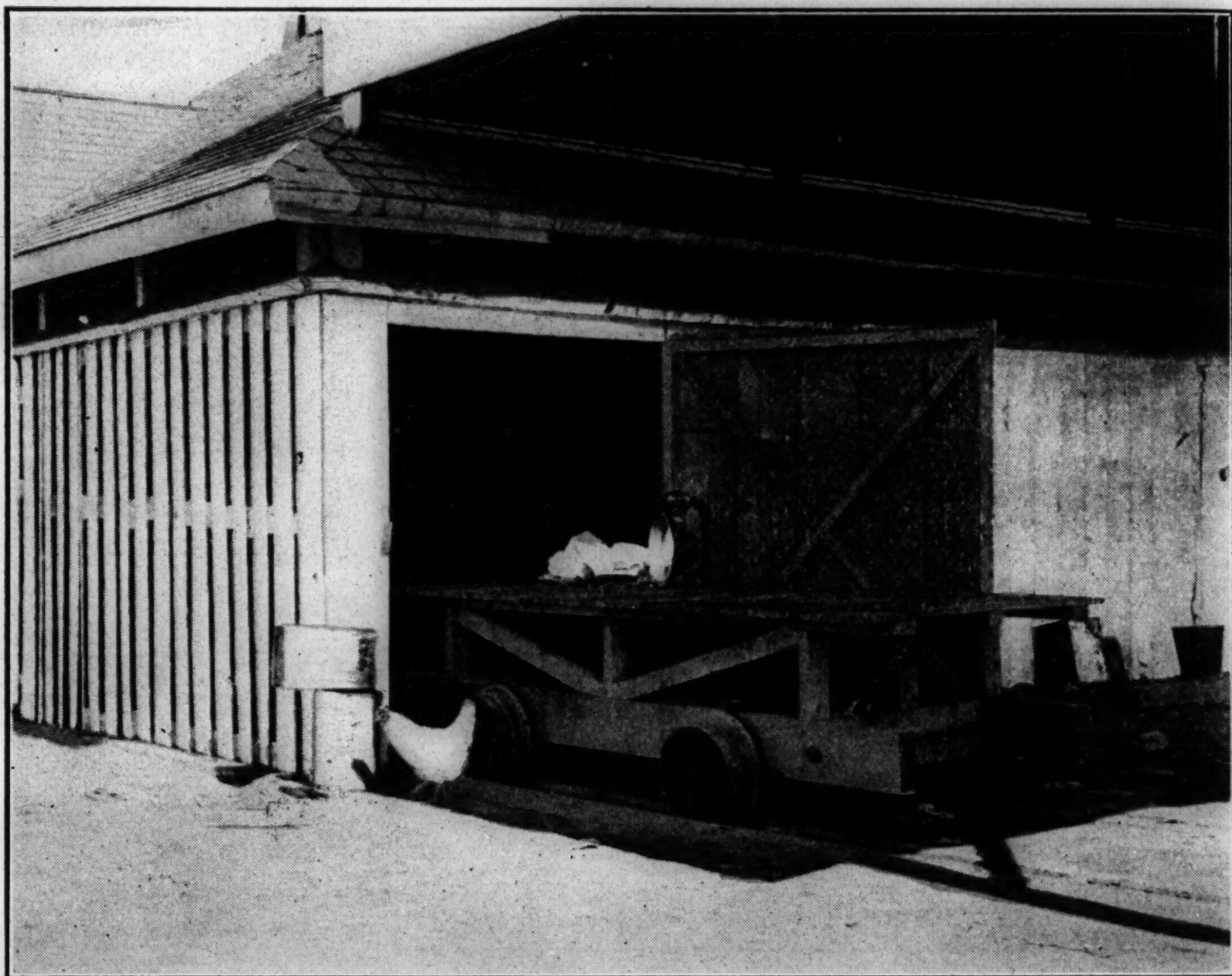


This is the residence of the employees of a slaughterhouse on one of the tributaries of the Sacramento river, a short distance above the water intake of a thriving city. The hog is less dangerous than the human users and abusers of the stream. On the stream below the lower right hand corner is the slaughterhouse, which uses the stream for the twofold purpose of wash water for the "wiping rags" and as a carrier for the refuse.

If the interests of the small butcher and his independence from the large slaughterhouses are to be conserved it will be necessary to establish municipal slaughterhouses under the administration of established districts. There are now in operation in the United States a number of such slaughterhouses for communities of 20,000 to 30,000 population. It has been found possible to make some of these self-sustaining on a very low schedule of fees. The general plan of these municipal abattoirs is to build and equip a modern sanitary slaughterhouse, place it under the management of a competent expert, and arrange a schedule of fees for slaughtering the various animals used in the meat trade. The meat retailer then deals directly with the cattle-

man or farmer, either buying his animals on the hoof and taking his own chances on those condemned on being slaughtered, or buying them dressed, in which case the farmer who produces them must stand the loss of those condemned at slaughter. The city or sanitary-meat district plans only to charge enough to cover the cost of maintenance and interest on its investment.

The time will probably come when an awakened public will demand the universal adoption of some such plan, and the present unsightly, unsanitary, intolerable nuisances dotted all over California's watersheds and known as "the slaughterhouses" will be only a matter of unsavory memory.



This unique slaughterhouse cooling room is described in the accompanying article on the Madera plan. Note the double roof and the "ventilated" side walls.

But this time has not yet arrived! There must be stepping stones. The following inexpensive plans for slaughterhouses in California are given as illustrations of what may reasonably be demanded by any community, pending the establishment of a municipal abattoir:

THE MADERA PLAN.—This is represented by a small slaughterhouse. The owner slaughters each week from two to four beeves, six to twelve sheep, and several hogs. His equipment consists of three divisions: a feeding-barn and corral, a killing shed, and a cooling house. The location provides enough slope for drainage. The feeding barns are only remarkable because they are clean. The killing shed is equipped with the customary large, overhead hoisting wheel and general apparatus, but the floor is of tight-fitting hardwood planks, kept scrubbed like a good housekeeper's sink-board. The slope is adequate to carry all refuse and washings out to a cement floor, connecting by a narrow runway with the hogpens, and by a gutter with cultivated soil at some distance. The salting bed for skins is well arranged and apart from the central workroom. The furnace and scalding vat, and scraping board for hogs is conveniently adjacent to the workroom but is separately drained and floored

with cement. All these and other details are common to the majority of carefully conducted slaughterhouses in California, but the cooling house is unique. A small iron track leads from the killing shed fifty feet to this cooling house. When the animal has been killed and dressed its body is placed on a flat-car which is pushed along this track to the cooling house where it is finally quartered and hung awaiting transportation to the refrigerator of the retail butcher.

The familiar framework of a California tank and windmill forms the four sides of this cooling house. The ground inside this frame and for ten inches outside it is cemented, the outside ten inches being arranged as a gutter leading to one outlet point which leads to the field. The four sides of this frame are screened with ordinary iron fly screening from the floor to a height of about ten feet. At this height there is a pyramidal board roof which not only covers the screened enclosure but extends ten feet beyond on all sides. This roof is overlaid by another shingled one providing an air space of six inches between the two. The outer area surrounding the screened room, which is thus roofed over on all sides, is enclosed by six-foot boarded walls, but these boards are each placed at a two-inch angle by nailing one side to the joists and blocking out the other two inches, giving the appearance of the blades of a windmill. The result of these arrangements is that cool currents of air are not obstructed and the heating up of the room is prevented by the double roof.

Just outside the wire screening of the inner room below the roof a perforated iron pipe runs round the four sides. These perforations are one inch apart. Hung from this pipe are long jute curtains that reach to the cement gutter at the floor level. This iron pipe is connected with one from the water tank above. Thus these curtains may be kept constantly saturated with water without waste. Inside the screened and curtained room thus constructed the meat racks and work table are arranged.

Not only is this room cool and sweet, but it is free from dust and has unrestricted circulation of air.

This is simply the California ranch house cooler magnified, but might well be imitated with small expense and great benefit by every small butcher and dairyman in the San Joaquin and Sacramento valleys.

THE COALINGA PLAN.—Coalinga has an energetic Health Board and progressive meat dealers. The essential features of the Coalinga plan are (1) a continuous cement working floor for all the processes of the work, and a roof for protection from the sun, and for support for the overhead apparatus; (2) an overhead suspension trolley is required, with necessary switch tracks from the killing runway to the scalding kettles, the central working floor, and the "finishing" and cooling room. There are no walls except that the "cooling room" is required to be walled and ceiled with wire fly screening. The meat is required to be removed as soon as possible to the refrigerator rooms of the local butchers. Hogs are not permitted to be fed near the slaughter-platform and all washings are required to be flushed from the entire floor and carried seventy-five feet to a catchment basin and alternating ditch system of irrigation.

These are but two of many ingenious plans which have been or can be developed if the public demands sanitary slaughterhouses. Such a demand is undoubtedly the first step toward general improvement of California's meat supply. The next step is to convince the public that if it is worth while to spend \$3,000,000 annually for Federal meat inspection in order to ensure healthy meat for foreign and interstate commerce, it is doubly important to spend such sums as may be necessary to similarly inspect and safeguard the intrastate meat supply.

THE NEED OF MUNICIPAL MEAT INSPECTION.

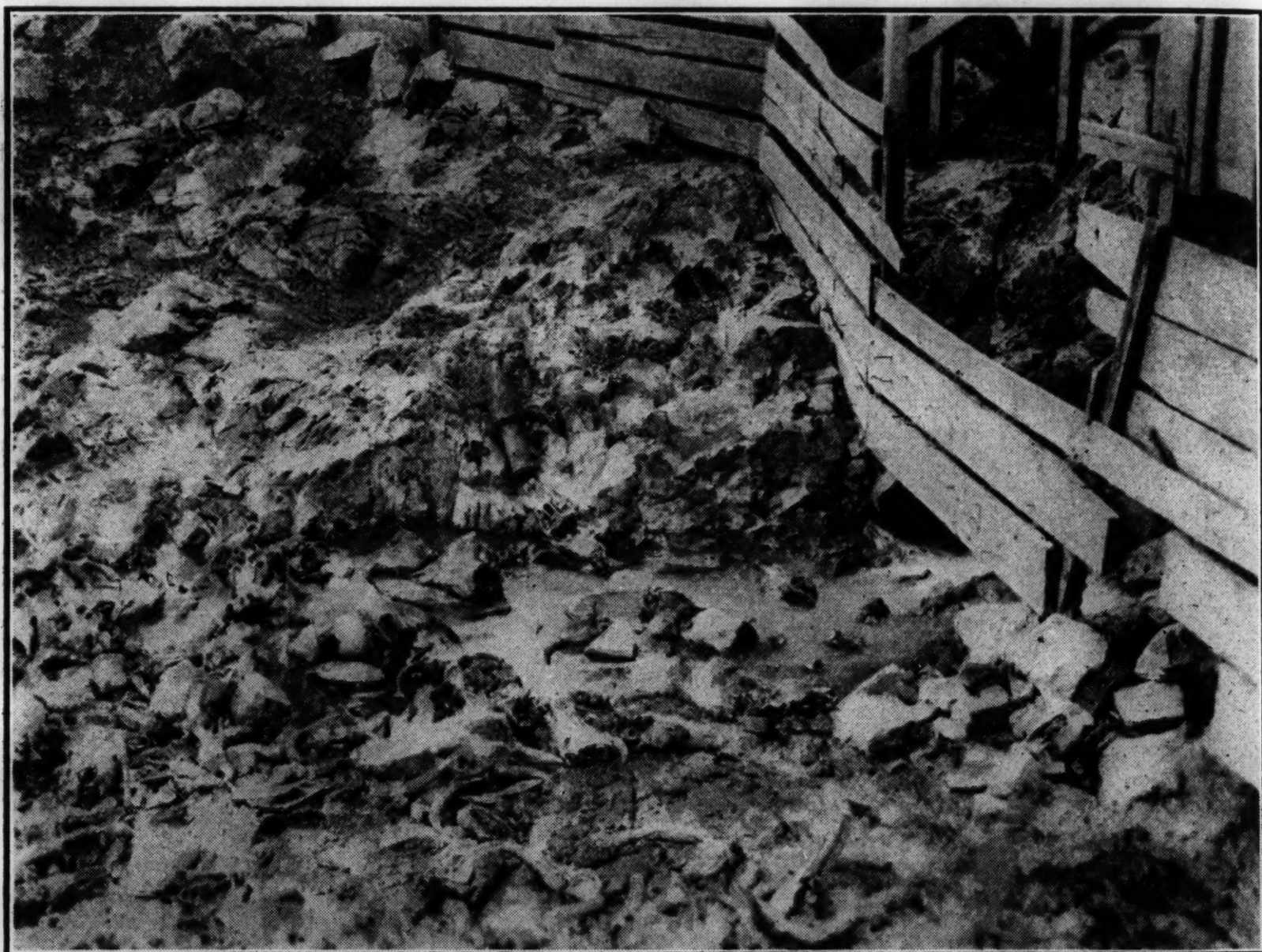
By GEORGE S. BAKER, M.D., Inspector in charge, Bureau of Animal Industry,
San Francisco.

The Federal Government, through the Bureau of Animal Industry of the United States Department of Agriculture, maintains a very rigid inspection of meats and meat food products which enter into interstate or export trade. It has no jurisdiction over the local market, except that, when a plant is working under Federal control, everything produced by this plant is subject to inspection, regardless of whether the product is to be shipped out of the State or not. In this way it

protects the local market as much as possible, but it can not force its inspection upon a house doing business wholly within a State.

In a State as large as California there is naturally a very large number of slaughterers and manufacturers of meat food products, sausages, lard, etc., who do not come under the supervision of the Federal inspectors. Also, under the act of congress providing for the inspection of meats, the farmer and retail butcher and dealer are exempt from the operation of the law; so that unless the State or the municipality provide inspection, the people are without any protection from diseased meats, so far as these local dealers are concerned.

There are only four points in California where Federal inspection is maintained: San Francisco, Los Angeles, Pomona, and San Diego, and



Where babbling brook and slaughterhouse come together the babbling brook "gets hurt"—and so does the meat. The surest progress against such unsightly and dangerous conditions as this will be made through showing the people fearlessly just where their meats come from, and asking them to discriminate between meat from clean and inspected slaughterhouses and—*the other kind*.

at every one of these points the uninspected plants outnumber those working under Government supervision, and, in the aggregate, far exceed the inspected plants in their annual output.

In addition to inspecting the animals slaughtered and their products, Federal inspectors exercise a very close supervision over the sanitation of every part of every establishment. Inspection is not begun until the plant is in proper sanitary condition, and is discontinued unless the standard set is maintained. No such conditions are tolerated in a Government inspected plant as the common rule in country, or even in city, slaughterhouses not working under Federal control. No offal of any description is allowed to accumulate about a Government inspected

plant and the plant is cleaned from top to bottom every day. The houses are effectively screened to exclude flies.

What a different picture is presented by the average uninspected house. Offal is thrown about and left to decay on the premises, or is dumped into the basement, or just outside the building, where it is fed to hogs. Rats infest the premises and the place swarms with flies. This association of hogs, rats, and offal forms an ideal condition for the propagation of disease, some forms of which are transmissible to man,—trichinosis, tapeworm, etc. Where hogs are fed upon beef offal, they are sure to contract tuberculosis.

No diseased animal gets by the government inspector. The seller and buyer have both learned this, with the result that the latter refuses to purchase apparently diseased stock except subject to inspection. The seller has learned that when his visibly diseased animals are condemned in a Government inspected house, he is paid only the value of the hide. The natural result follows: most of the dairy cows, which are suspected of being tubercular, go to the plants not working under Federal inspection, and the meat is undoubtedly sold to the unsuspecting public at the same price as Government inspected meat.

The remedy for this very undesirable state of affairs is the municipal slaughterhouse, where everything is killed under the direct supervision of the municipal authorities. Such municipal slaughterhouses or abattoirs are of direct benefit to the slaughterer, as they furnish facilities for disposing of offal or by-products at a profit, which the small butcher can not afford to provide for himself.

The consumer must consider the above conditions when buying other than Government inspected meats.

Government inspected meats all bear a brand reading, "U. S. Inspected and Passed."

REPORT OF BUREAU OF ADMINISTRATION FOR JANUARY, 1913.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

In January one formal application was made to the State Board of Health for a permit for sewage disposal. This application was made by the city of Orange, and is the fourth from cities and towns whose sewage is finally disposed of by broad irrigation. In two cases these irrigated lands are far from water courses. Such applications are particularly gratifying to the Board, because they represent a desire on the part of the communities, which, strictly speaking, do not come under the exact interpretation of the law protecting the purity of inland waters, to have their sewerage and sewage disposal problems reviewed and approved by the State Board of Health.

Early in January the Consulting Engineer of the Board completed a comprehensive and detailed report on the sewerage and sewage disposal of Hanford. On the basis of this report the State Board of Health approved of the plans and specifications prepared by Messrs. Sloan and Robson of San Francisco for a new and improved sewerage and sewage treatment works.

Throughout the month the Board continued its investigations of the Sacramento sewerage problem, Mr. C. G. Gillespie remaining in the field for this work, as during the previous month. The Consulting Engineer of the Board visited Sacramento on January 21st, in connection with these studies. The investigations comprehend measurements of the volume of sewage contributed by the older portion of Sacramento, tributary to the pumping plant in the southwesterly portion of the city, the volume of water consumed by the city and the character and composition of the sewage.

On January 22d, the Consulting Engineer of the Board, in company with Dr. Simpson, county health officer, Mayor Monahan, and City Engineer Ryder of San Jose, visited the East San Jose sewage disposal works and the refuse disposal dump of San Jose City.

On January 22d, and 25th, the Consulting Engineer of the Board held conferences with reference to the proposed project for the new and improved sewerage and sewage disposal works for the town of Los Gatos. The site recently purchased by the town for the sewage disposal plant was visited, and general advice was given as to the probably most suitable and efficient scheme of works.

During the month the Consulting Engineer of the Board made detailed studies with respect to the proper treatment of the trade wastes from the Anaheim Sugar Company's plant near Anaheim, California. While this work was not done directly for the Board, the State is interested in the problem because of complaints which had been made to the State Board of Health by residents of this locality who objected to odors arising from the decomposition of the wastes which had been discharged in large lagoons near the factory during the sugar making season or campaign of 1912.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: December.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
December—			
Births -----	3,578	3,275	16.4
Deaths -----	3,581	3,432	16.4
Marriages -----	3,197	2,652	14.6
November—			
Births -----	3,236	2,722	15.3
Deaths -----	2,992	2,889	14.1
Marriages -----	2,773	2,490	13.1

The birth, death and marriage totals for December, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: December.

County.	December, 1912.		
	Births.	Deaths.	Marriages.
California -----	3,578	3,581	3,197
Counties of more than 25,000 population (1910):			
Alameda -----	338	340	283
Butte -----	42	31	20
Contra Costa -----	37	39	25
Fresno -----	138	98	122
Humboldt -----	43	36	39
Kern -----	66	55	52
Los Angeles -----	915	921	733
Marin -----	15	24	151
Orange -----	34	43	113
Riverside -----	41	56	42
Sacramento -----	145	102	128
San Bernardino -----	84	108	75
San Diego -----	122	153	113
San Francisco -----	566	627	568
San Joaquin -----	64	112	61
San Mateo -----	43	27	23
Santa Barbara -----	83	31	23
Santa Clara -----	128	126	116
Santa Cruz -----	34	31	30
Solano -----	25	34	20
Sonoma -----	45	74	60
Tulare -----	36	53	30
Selected groups:			
San Francisco and other bay counties -----	999	1,057	1,050
Los Angeles and Orange counties -----	949	964	846

Birth and Death Totals, for Principal Cities: December.

City.	December, 1912.	
	Births.	Deaths.
Freeholders' charter cities -----	2,165	2,216
Cities of more than 15,000 population (1910):		
Alameda -----	27	30
Berkeley -----	67	36
Fresno -----	50	37
Long Beach -----	26	46
Los Angeles -----	631	548
Oakland -----	218	206
Pasadena -----	54	53
Riverside -----	19	32
Sacramento -----	120	88
San Diego -----	106	128
San Francisco -----	566	627
San Jose -----	51	44
Stockton -----	37	82
Selected groups:		
San Francisco -----	566	627
Oakland, Alameda and Berkeley -----	312	272
Totals, bay cities -----	878	899
Los Angeles -----	631	548
Neighboring cities -----	101	142
Totals -----	732	690

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: December.

Cause of death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES -----	3,581	1,000.0	1,000.0
Typhoid fever -----	35	9.8	16.4
Malarial fever -----	5	1.4	2.0
Smallpox -----	1	0.3	0.3
Measles -----	1	0.3	-----
Scarlet fever -----	3	0.8	0.7
Whooping-cough -----	5	1.4	3.3
Diphtheria and croup -----	21	5.9	7.7
Influenza -----	36	10.1	4.3
Other epidemic diseases -----	11	3.1	5.7
Tuberculosis of lungs -----	434	121.2	117.0
Tuberculosis of other organs -----	76	21.2	15.4
Cancer -----	190	53.1	66.5
Other general diseases -----	140	39.1	46.5
Meningitis -----	42	11.7	8.0
Other diseases of nervous system -----	303	84.6	69.2
Diseases of circulatory system -----	631	176.2	175.8
Pneumonia and broncho-pneumonia -----	407	113.6	85.6
Other diseases of respiratory system -----	129	36.0	25.1
Diarrhea and enteritis, under 2 years -----	66	18.4	23.7
Diarrhea and enteritis, 2 years and over -----	32	8.9	11.0
Other diseases of digestive system -----	154	43.0	56.8
Bright's disease and nephritis -----	220	61.5	63.5
Childbirth -----	34	9.5	9.7
Diseases of early infancy -----	132	36.9	35.1
Suicide -----	66	18.4	16.0
Other violence -----	254	70.9	84.6
All other causes -----	153	42.7	50.1

In December there were 631 deaths, or 17.6 per cent of all, from diseases of the circulatory system, and 510, or 14.2 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Diseases of the respiratory system, 536; diseases of nervous system, 345; violence, 320; diseases of digestive system, 252; Bright's disease and nephritis, 220; cancer, 190, and epidemic diseases, 118.

The deaths from epidemic diseases were as follows: Influenza, 36; typhoid fever, 35; diphtheria and croup, 21; malarial fever and whooping cough, each 5; and all other epidemic diseases, 16.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza.		Typhoid fever.		Diphtheria and croup.	
Butte -----	1	Alameda -----	1	Alameda -----	3
El Dorado -----	1	Fresno -----	3	Fresno -----	3
Imperial -----	1	Glenn -----	1	Imperial -----	1
Inyo -----	1	Kern -----	1	Kern -----	1
Los Angeles -----	18	Los Angeles -----	5	Los Angeles -----	2
Merced -----	1	Mendocino -----	1	Riverside -----	1
San Diego -----	2	Monterey -----	1	Sacramento -----	1
San Francisco -----	1	Sacramento -----	3	San Bernardino -----	1
Santa Barbara -----	1	San Bernardino -----	1	San Diego -----	1
Santa Clara -----	1	San Diego -----	2	San Francisco -----	2
Santa Cruz -----	1	San Francisco -----	7	San Mateo -----	1
Sierra -----	1	San Joaquin -----	1	Santa Clara -----	1
Sonoma -----	1	Santa Barbara -----	1	Sonoma -----	1
Stanislaus -----	1	Santa Clara -----	1	Stanislaus -----	1
Tulare -----	1	Santa Cruz -----	1	Tulare -----	1
Ventura -----	1	Stanislaus -----	1		
Yolo -----	2	Tehama -----	1		
		Tulare -----	1		
		Tuolumne -----	1		
		Yolo -----	1		
Total -----	36	Total -----	35	Total -----	21

Geographic Divisions.—The following table presents data for geographic divisions, including the metropoliation area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California.

Deaths from Main Classes of Diseases, from Geographic Divisions: December.

Geographic division.	Deaths: December.										
	All causes -----	Epidemic diseases	Tuberculosis (all forms) ----	Cancer -----	Diseases of nervous system -	Diseases of circulatory system----	Diseases of respiratory system-	Diseases of digestive system	Bright's disease and nephritis --	Violence -----	All other causes--
THE STATE -----	3,581	118	510	190	345	631	536	252	220	320	459
Northern California -----	368	8	46	12	41	75	41	26	21	40	58
Coast counties -----	194	3	32	7	28	34	20	14	17	13	26
Interior counties -----	174	5	14	5	13	41	21	12	4	27	32
Central California -----	1,860	65	229	95	178	323	291	141	122	186	230
San Francisco -----	627	15	92	45	56	111	101	43	36	62	66
Other bay counties --	430	9	48	22	48	82	61	36	33	42	49
Coast counties -----	210	11	25	6	23	47	28	12	14	17	27
Interior counties -----	593	20	64	22	51	83	101	50	39	65	88
Southern California-----	1,353	45	235	83	126	233	204	85	77	94	171
Los Angeles -----	921	32	154	67	86	165	147	50	54	60	106
Other counties -----	432	13	81	16	40	68	57	35	23	34	65
Northern and Central California -----	2,228	73	275	107	219	398	332	167	143	226	288
Metropolitan area ---	1,057	24	140	67	104	193	162	79	69	104	115
Rural counties -----	1,171	49	135	40	115	205	170	88	74	122	173

Sex and Age Periods.—The proportion of the sexes among the 3,581 decedents in December was: Male, 2,243, or 62.6 per cent, and female, 1,338, or 37.4 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: December.

Age period.	Deaths.			Per cent.		
	Totals.	Male.	Female.	Total.	Male.	Female.
ALL AGES-----	3,581	2,243	1,338	100.0	100.0	100.0
Under 1 year-----	347	205	142	9.7	9.1	10.6
1 to 4 years-----	126	77	49	3.5	3.4	3.7
5 to 14 years-----	90	55	35	2.5	2.5	2.6
15 to 24 years-----	174	102	72	4.9	4.6	5.4
25 to 34 years-----	351	241	110	9.8	10.7	8.2
35 to 44 years-----	379	255	124	10.6	11.4	9.3
45 to 54 years-----	450	301	149	12.6	13.4	11.1
55 to 64 years-----	455	307	148	12.7	13.7	11.1
65 years and over-----	1,209	700	509	33.7	31.2	38.0

This table shows that relatively more females than males died at the age periods under 25 years as well as at 65 years and over, while relatively more males than females died at the age periods from 25 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: December.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	3,018	1,906	1,112	63.2	36.8
Occupation reported-----	1,723	1,620	103	94.0	6.0
No gainful occupation-----	1,295	286	1,009	22.1	77.9

Of the 1,723 decedents for whom occupations were reported the males numbered 1,620, or 94.0 per cent, and the females only 103, or 6.0 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: December.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS -----	1,620	100.0
Professional-----	82	5.1
Clerical and official-----	104	6.4
Mercantile and trading-----	128	7.9
Public entertainment-----	42	2.6
Personal service, police and military-----	58	3.6
Laboring and servant-----	338	20.8
Manufacturing and mechanical industry-----	330	20.4
Agriculture, transportation and other outdoor pursuits-----	526	32.5
All other occupations-----	12	0.7

Of the 1,620 male decedents for whom occupations were reported, 526, or 32.5 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 338, or 20.8 per cent, in laboring and servant work; 330, or 20.4 per cent, in manufacturing and mechanical industry, and altogether 426, or 26.3 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations which show small numbers of deaths.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR JANUARY, 1913.

GUY P. JONES, Acting Director.

Clean-up days are now in order and this Bureau has some publications containing suggestions for clean-up campaigns that may be useful to interested citizens. The setting aside of a certain day each Spring, for concentrated effort in municipal house cleaning, has come to be a tradition in most California cities. Governor Johnson, in an official proclamation last year, designated April 18th as "Fire Prevention Day," emphasizing "the great waste caused by carelessness, lack of cleanliness or the accumulation of rubbish in yards, cellars, alleyways and unfrequented streets." As a result, nearly every city in the State engaged in general cleaning upon that day, and from present indications the Spring of 1913 will have more clean-up days than any previous year.

The first newspaper clipping containing an announcement of activities of the sort, to reach this Bureau, is from Bakersfield, where March 1st is designated as clean-up day. Other cities to join in campaigns of the sort are Chico, Sierra Madre, Covina, Corona, Richmond and Berkeley, with the names of other cities being added to the list every day.

The edition of the bulletin containing articles upon this subject is very limited and copies can be supplied only for a short time.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR JANUARY.

WILBUR A. SAWYER, M.D., Director.

Making Diphtheria Carriers.

When people are exposed to diphtheria patients, some take the disease, in the throats of others the germs lodge and multiply without producing symptoms, and still others escape both the acute disease and the carrier state.

When diphtheria has been present in a community for some months, the number of carriers is found, on investigation, to be large. For example, there were many cases of diphtheria in Hayward from August, 1907, to February, 1908. In February cultures were taken from the throats of the 690 grammar school children and were sent to the State Hygienic Laboratory for examination. One hundred and twenty-two, or approximately 18 per cent of the cultures were positive, showing that large numbers of the children had become carriers and were a possible danger to others. In contrast to these figures are the results of examinations in 1908 of cultures from about 350 healthy men of the Freshmen class at the University of California. Careful study of the cultures in the bacteriological laboratory of the University showed only 2 1-2 per cent of positive cultures. These two illustrations suggest that the usual number of diphtheria carriers in a California community would be about 3 per cent, but that in the presence of an outbreak of diphtheria the number of carriers might easily rise to 18 per cent. It seems probable that much of this rapid increase in the number of diphtheria carriers, in communities where diphtheria is present, is due to the frequent neglect of strict isolation of the patient from the healthy persons who are specially exposed to infection on account of their confinement with the patient in narrow premises through quarantine regulations.

During the past few months several physicians have sent cultures to the laboratory from all the members of households which were in quarantine for diphtheria. An astonishing number of carriers were, in this way, discovered. Two of eight children in one family came down with diphtheria. The other six children gave positive cultures shortly afterward, but did not develop the disease. A family, consisting of a father, mother, and five children, lived under crowded conditions in a very small cottage. One of the children came down with diphtheria. Soon afterward cultures were taken from the whole family, and all except one child showed the presence of diphtheria bacilli. The disease developed soon afterward in one of the children, but the other four persons who had the bacilli in their throats were carriers only. In another family there was one severe case of diphtheria in one of the children. Cultures from the remainder of the members of the household showed diphtheria bacilli in the inflamed eye of the mother, who was caring for the sick child, and diphtheria bacilli in the throats of five of the six well persons in the household.

The illustrations which I have given show that the physician attending a case of diphtheria, and also the members of the household, should

feel it necessary to isolate cases of diphtheria from other persons within the quarantined premises. This should be efficiently done in order to prevent well persons, both from coming down with diphtheria and from becoming carriers and spreading the disease when the quarantine is lifted. It is easy to see why diphtheria continues to spread in many communities which meet the requirements regarding quarantine of diphtheria cases and which do not release the patient before securing two successive negative cultures. The protection from diphtheria would be much more complete if strict isolation of the patient and convalescent within the quarantined premises were more often maintained. Another wise precaution before raising the quarantine would be to take cultures from the entire household, as well as from the recovered patient, in order to detect all the carriers.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of January, 1913.

Condition suspected.	Positive.	Negative.	Inconclu- sive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		4		4
Diphtheria -----	107	88	3	198
Gonococcus infection -----	4	4		8
Hookworm -----		2		2
Malaria -----		2		2
Rabies -----	20	3		23
Tuberculosis -----	6	17		23
Typhoid -----	6	11		17
Water pollution -----	2			2
Miscellaneous -----		1	1	2
				281
Northern Branch at Sacramento:				
Diphtheria -----	5	9	2	16
Tuberculosis -----		6		6
Typhoid -----		2		2
				24
San Joaquin Valley Branch at Fresno:				
Diphtheria -----	5	7		12
Malaria -----		1		1
Tuberculosis -----		2		2
Typhoid -----		1		1
				16
Southern Branch at Los Angeles:				
Diphtheria -----	4	14	2	20
Tuberculosis -----		1		1
Typhoid -----	1	1	1	3
				24
Total number of examinations -----				345

Division of Preventive Therapeutics.

*Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of January, 1913.*

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley-----	1	0
Northern Branch at Sacramento-----	6	7
San Joaquin Valley Branch at Fresno-----	3	4
Southern Branch at Los Angeles-----	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist -----	2	5
Laboratory of San Francisco Board of Health, by deputized bacteriologist -----	9	7
Laboratory of Los Angeles Board of Health, by deputized bacteriologist -----	12	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist -----	0	0
Totals -----	33	23

Division of Epidemiological Investigations

Epidemiological Investigations During January, 1913.

Main Laboratory at Berkeley:	
Special investigations by the Director-----	5
Investigation of five cases of smallpox in Berkeley.	
Investigation of a diphtheria outbreak at Hayward.	
Investigation of a case of suspected human glanders at Hayward.	
Investigation of a case of smallpox in Oakland.	
Investigation of a case of infantile paralysis near San Leandro.	
Special investigations by the chief bacteriologist-----	2
Investigation of the typhoid fever situation at Antioch.	
Co-operation with the city of Sacramento in the investigation of the water supply.	

Public Health Instruction.

Participation in Instruction in Public Health During January, 1913.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out-----	3
Bacteriological instruction outfits in use-----	24
Lectures or talks by the Director-----	1

REPORT OF BUREAU OF FOODS AND DRUGS FOR JANUARY, 1913.

M. E. JAFFA, Director.

In answer to many questions concerning the disposition of frozen fruit it may be said that the U. S. Department of Agriculture, Bureau of Chemistry, has taken the position that oranges will be considered as decomposed, and therefore not salable as a human food when, upon cross-section, 20 per cent of the fruit is dry or otherwise being plainly frost-injured. The proportion of allowable fruit of this character has been set at 15 per cent. Fruit which is only slightly damaged by frost should be properly labeled when offered or exposed for sale.

Upwards of 150 samples of foods, food products, drugs, etc., have been examined at the State Laboratory during the month of January. Prominent among the examinations were spices, extracts, syrups, evaporated milks and catsups.

This laboratory co-operated with the City Laboratory of Sacramento in the matter of analysis of Sacramento River water and sewage.

A large number of samples representing foods and other supplies were received from the different state institutions. These have been examined and reported on to the stewards of the respective institutions.

Food Inspection Decision No. 149, reprinted below, has been received at the State Laboratory, in accordance with section 3 of the food law, reading—

“The standard of purity of food and liquor shall be that proclaimed by the Secretary of the United States Department of Agriculture.”

This decision becomes automatically part of our law.

Food Inspection Decision No. 149.

USE OF COPPER SALTS IN THE GREENING OF FOODS.

Paragraph 4 of Food Inspection Decision No. 148 is hereby modified to read as follows:

The Secretary of Agriculture, therefore, will regard as adulterated, under the food and drugs act, foods greened with copper salts which, on and after January 1, 1913, are offered for entry into the United States or are manufactured or offered for sale in the District of Columbia or the Territories, or which, on and after May 1, 1913, are shipped in interstate commerce.

Food Inspection Decision No. 150.

FROZEN CITRUS FRUIT.

It has come to the attention of the Board of Food and Drug Inspection that, as a result of a recent freeze, citrus fruit that has been badly damaged by frost is being placed on the market.

Citrus fruit is injured in flavor by freezing and soon becomes dry and unfit for food. The damage is evidenced at first by a more or less bitter flavor, followed by a marked decrease in sugar, and especially in acid content. Fruit which has been materially damaged by freezing is inferior and decomposed within the meaning of the Food and Drugs Act.

For the guidance of those engaged in shipping citrus fruit, it is announced that, pending further investigation, the following principles will be observed in enforcing the Food and Drugs Act:

Citrus fruit will be deemed adulterated within the meaning of the Food and Drugs Act if the contents of any package found in interstate commerce contain 15 per cent or more of citrus fruit which, on a transverse section through the center, shows a marked drying in 20 per cent or more of the exposed pulp.

Any person wishing copies of any of the following Notices of Judgments may obtain same by addressing the Director of the State Laboratory, University of California, Berkeley, Cal.

- Nos. 1680, 1689, 1798, 1727—Misbranding of Coffee.
- No. 1777—Misbranding of Fig Prune Cereal.
- No. 1685—Misbranding of Peas.
- No. 1700—Misbranding of So-called Fresh Green Peas.
- Nos. 1682, 1683, 1695, 1743, 1746, 1786, 1787, 1795—Adulteration and Misbranding of Vinegar.
- Nos. 1684, 1767—Adulteration and Misbranding of Apricot Cordial.
- Nos. 1686, 1694, 1809—Adulteration and Misbranding of Cattle and Horse Feed.
- No. 1707—Misbranding of Cottonseed Meal.
- No. 1688—Misbranding of Lima Beans.
- Nos. 1690, 1709, 1714, 1716, 1719, 1724, 1725, 1729, 1761—Adulteration and Misbranding of Catsup.
- No. 1691—Alleged Misbranding of Cuticura Ointment and Cuticura Soap.
- No. 1706—Misbranding of "Make-Man" Tablets.
- Nos. 1692, 1802—Misbranding of So-called Imperial Spring Water.
- No. 1681—Adulteration and Misbranding of So-called Peppermint Extract.
- No. 1687—Adulteration and Misbranding of Oleo Resin Vanilla.
- Nos. 1764, 1797, 1801, 1807—Adulteration and Misbranding of So-called Prime Vanilla Extract.
- No. 1772—Misbranding of Lemon Extract and Vanilla Extract.
- Nos. 1693, 1710, 1711, 1712, 1715, 1744—Adulteration of Tomato Paste.
- Nos. 1805—Adulteration of Tomato Sauce.
- Nos. 1785, 1793—Adulteration of Tomato Pulp.
- No. 1696—Misbranding of Fish.
- Nos. 1697, 1698—Alleged Adulteration and Misbranding of Olive Oil.
- Nos. 1699, 1718, 1738, 1741, 1770, 1791, 1794—Adulteration of Shucked Oysters.
- No. 1701—Adulteration and Misbranding of So-called Laubenheimer Wine and of So-called Syrup of Tamarind.
- Nos. 1702, 1742—Adulteration of So-called Royal Strawberry Jelly and So-called Royal Raspberry Jelly.
- Nos. 1703, 1704—Adulteration of So-called "Gran Liqueur Della Stella."
- No. 1705—Adulteration of Frozen Eggs.
- No. 1730—Misbranding of Creme De Menthe.
- No. 1708—Adulteration of Confectionery (Jelly Beans).
- No. 1713—Misbranding of Salad Oil.
- Nos. 1717, 1747—Misbranding of Evaporated Milk.
- Nos. 1748, 1750, 1778, 1779, 1780, 1781, 1782—Adulteration of Milk.
- Nos. 1720, 1728, 1739, 1765—Adulteration and Misbranding of Cheese.
- Nos. 1721, 1722, 1731, 1732, 1771, 1775—Adulteration and Misbranding of So-called Maraschino Cherries.
- No. 1723—Adulteration of Chestnuts.
- No. 1726—Misbranding of So-called Sparkling Burgundy Wine.
- No. 1735—Adulteration of Canned Peaches.
- No. 1736—Misbranding of Butter.
- No. 1737—Adulteration and Misbranding of Ice Cream.
- No. 1740—Misbranding of Canned Corn.
- No. 1745—Adulteration and Misbranding of Fig and Honey Cakes.
- Nos. 1749, 1751—Adulteration of Cream.
- Nos. 1762, 1763—Adulteration and Misbranding of Sorghum and Corn Syrup.
- No. 1789, 1790—Misbranding of Syrup.
- No. 1766—Misbranding of Shred Cocoanut.
- No. 1768—Adulteration and Misbranding of Flour.
- Nos. 1769, 1776—Adulteration and Misbranding of So-called Apple Base Cider.
- No. 1773—Adulteration and Misbranding of Cottonseed Meal.
- No. 1774—Adulteration and Misbranding of Prepared Mustard and Horse-radish.
- No. 1783—Adulteration of Ice Cream Cones.
- No. 1784—Misbranding of Witch-Hazel.
- No. 1788—Misbranding of Lekvar (Compound of Prunes and Glucose).
- No. 1792—Adulteration and Misbranding of Vermouth.
- No. 1796—Adulteration and Misbranding of Nitroglycerine Tablets.
- No. 1799—Adulteration and Misbranding of Nitroglycerine Triturates.
- No. 1800—Adulteration of Nutmegs.
- No. 1803—Alleged Adulteration and Misbranding of Milk Chocolate.
- No. 1804—Misbranding of Pepper.
- No. 1806—Adulteration and Misbranding of Macaroni.
- No. 1808—Alleged Adulteration of Dried Peaches and of Dried Blackberries.
- No. 1810—Adulteration and Misbranding of Acetphenedin Tablets; Triturates Aloin, Iron, and Strychnine; Tablets Ferruginous Bland's and Nux Vomica; Tablets Flatulence; Nitroglycerine Tablets; Tablets Extract Nux Vomica; Salol Tablets; Tablets Strychnine Nitrate; Tablets Aloin; Belladonna, and Nux Vomica.

Cases Referred to District Attorneys January 4, 1913.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	-----	H. N. Edlin. Lincoln	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for pork.	-----	Market. Lincoln Market -----	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for pork.	-----	Lincoln Market -----	San Francisco.
Chopped meat -----	Adulterated. Contains sulphur dioxide-----	-----	Saratoga Market -----	San Jose.
Sausage meat -----	Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for meat.	-----	Nickel & Brown Bros.-----	Napa.
Fresh eastern eggs-----	Mislabeled. Eggs were not fresh-----	Paul Peipers Produce Co. (Guarantors.)	-----	Los Angeles.
Fresh eastern eggs-----	Mislabeled. Eggs were not fresh-----	-----	Mission Grocery -----	Los Angeles.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	-----	Hardy & Westphal-----	Los Angeles.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stile	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. W. F. Maggard	Corning
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Kernville	
Albany	Dr. Robt. Hector	King City	
Alhambra	Dr. F. E. Corey	Kingsburg	
Alturas	Dr. John Stile	Lakeport	Jabez Banks
Alviso		Larkspur	
Anaheim	Dr. J. L. Beebe	Lincoln	F. R. Elder
Antioch	Dr. W. S. George	Lindsay	Dr. W. W. Tourtillot
Arcadia		Livermore	Dr. H. G. McGill
Arcata	Dr. G. W. McKinnon	Lodi	Dr. F. W. Colman
Arroyo Grande		Long Beach	Dr. W. H. Newman
Auburn	A. S. Waldo	Lompoc	
Azusa	Dr. John E. Hill	Lordsburg	Dr. J. E. Hubble
Bakersfield	H. Farris	Los Angeles	Dr. L. M. Powers
Belvedere	Dr. Florence Scott	Los Banos	Dr. J. L. McClelland
Benicia	Dr. W. L. McFarland	Los Gatos	Dr. C. K. Small
Berkeley	Dr. J. J. Benton	Loyalton	Dr. G. L. Coates
Biggs	Dr. O. C. Hawkins	Madera	
Bishop	Dr. J. W. Shute	Maricopa	Dr. H. N. Taylor
Blue Lake	Dr. G. N. Wood	Martinez	Dr. E. E. Brown
Brawley	Dr. L. L. Lindsey	Marysville	Wm. Meek
Burbank		Mayfield	Dr. F. M. Seibert
Burlingame		McCloud	Dr. R. T. Legge
Calistoga	Dr. Henry Abrons	McKittrick	G. M. Chitwood
Calexico	Dr. Wm. F. Smith	Merced	Dr. Brett Davis
Chico	G. H. Taylor	Mill Valley	Capt. M. Staples
Chino	Dr. John W. Callnon	Modesto	Dr. E. V. Falk
Claremont		Montague	
Cloverdale	Dr. Cory C. Ledyard	Mojave	A. Smith
Coalinga	Dr. H. S. Warren	Monrovia	Dr. Abram Hostetter
Colfax		Monterey	Edward Allen
Colton	Dr. L. A. J. La Motte	Morgan Hill	Dr. D. W. Watt
Colusa	Dr. C. A. Poage	Mountain View	Dr. A. H. McFarlane
Compton	J. W. Stone	Napa	J. D. Treadway
Concord	Dr. F. F. Neff	National City	Dr. T. F. Johnson
Coram	Geo. H. Thomas	Nevada City	Hugh Murchie
Corning	Dr. O. F. Rudolph	Newman	Dr. H. V. Armistead
Corona	Dr. W. S. Davis	Newport Beach	
Coronado	Dr. Raffaele Lorini	Oakdale	Elmer E. Endicott
Cottonwood	Dr. A. B. Gilliland	Oakland	Dr. E. N. Ewer
Covina		Ocean Side	Dr. R. S. Reid
Crescent City		Ocean Park	Dr. W. M. Kendall
Daly City		Ontario	Dr. C. S. Orr
Davis	Dr. W. E. Bates	Orange	Dr. Arthur H. Dorman
Delano	Dr. H. Hildreth	Orland	Dr. S. Goldman
Dinuba	Dr. Wm. Whittington	Oroville	Dr. W. F. Gates
Dorris	Dr. A. A. Atkinson	Oxnard	Dr. Ralph W. Avery
Dixon	W. C. Rhem	Pacific Grove	Charles E. Tuck
Dunsmuir	Dr. W. B. Mason	Palo Alto	Hubert O. Jenkins
Eagle Rock	Dr. C. H. Phinney	Pasadena	Dr. Stanley P. Black
Elsinore	Dr. George D. Keeler	Paso Robles	H. M. Bayne
Emeryville	Dr. A. T. Drennan	Perris	A. F. Hardy
Escondido	Dr. David Crise	Petaluma	Dr. J. M. Proctor
Etna Mills	Dr. W. H. Haines	Pinole	J. Chatteleton
Eureka	Dr. L. A. Wing	Pittsburg	Dr. F. S. Gregory
Exeter	Dr. A. D. McLean	Placerville	P. J. Hall
Fairfield	Dr. S. G. Bransford	Pleasanton	Dr. S. J. Wells
Ferndale	Dr. C. A. Phelan	Pomona	Dr. T. J. Wilson
Fort Bragg	Dr. L. C. Gregory	Porterville	Dr. O. C. Higgins
Fort Jones	Thos. Bransom	Piedmont	Geo. T. Burtchael
Fortuna	Dr. Geo. S. Loveren	Point Arena	
Fowler	Dr. W. T. Crawford	Potter Valley	
Fresno	Dr. Geo. H. Aiken	Randsburg	E. B. McGinnes
Fullerton	Dr. F. J. Gobar	Red Bluff	Dr. F. J. Bailey
Gilroy	Dr. John A. Clark	Redding	L. D. Poole
Glendale	Dr. R. E. Chase	Redlands	Dr. Chas. E. Ide
Grass Valley	Paul E. Sears	Redondo Beach	Dr. D. R. Hancock
Gridley	Dr. L. L. Thompson	Redwood City	Dr. J. L. Ross
Hanford	Dr. C. L. Scott	Richmond	Dr. Chas. R. Blake
Hayward	Dr. F. W. Browning	Rio Vista	Dr. A. J. McKinnon
Healdsburg	Dr. J. W. Seawell	Riverside	Dr. Thos. R. Griffith
Hemet	Dr. A. B. Eadie	Rocklin	H. D. Fletcher
Hermosa Beach	B. F. Brown	Roseville	Mabel B. Scott
Hercules	Dr. M. L. Fernandez	Ross	
Hillsborough		Sacramento	Dr. Wm. K. Lindsay
Hollister	Dr. R. G. Curtis	Saint Helena	S. H. Pettit
Hollywood	E. O. Palmer	Salinas	F. A. Abbott
Huntington Beach	Dr. G. A. Shank	San Anselmo	Dr. Chipman
Huntington Park	Dr. W. Thompson	San Bernardno	Dr. C. V. McConnico
Imperial	Dr. C. E. Standlee	San Diego	Dr. F. H. Mead
Inglewood	Dr. H. A. Putnam	San Francisco	Dr. R. G. Broderick
Jackson	George Hambric	Sanger	
Kennett	Dr. J. P. Sandholdt	San Jose	Dr. M. F. Hopkins